Sample Exam – Questions
Sample Exam set A
Version 1.1

ISTQB® Improving the Test Process, part 1: Assessing the Test Process Syllabus Expert Level
Compatible with Syllabus version 1.0

International Software Testing Qualifications Board

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Document Responsibility

The ISTQB® Examination Working Group is responsible for this document.

This document is maintained by a core team from ISTQB® consisting of the Syllabus Working Group and Exam Working Group.

Acknowledgements

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Revision History

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1.1	February 17, 2022	Replacement of deprecated Keywords Update of template
1.0.1	June 4, 2021	Update of Copyright Notice
1.0	October 23, 2015	First version

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Introduction

Purpose of this document

The example questions and answers and associated justifications in this sample exam have been created by a team of subject matter experts and experienced question writers with the aim of:

- Assisting ISTQB® Member Boards and Exam Boards in their question writing activities
- Providing training providers and exam candidates with examples of exam questions

These questions cannot be used as-is in any official examination.

Note, that real exams may include a wide variety of questions, and this sample exam *is not* intended to include examples of all possible question types, styles or lengths, also this sample exam may both be more difficult or less difficult than any official exam.

Instructions

In this document you may find:

- Questions[1], including for each question:
    - Any scenario needed by the question stem
    - Point value
    - Response (answer) option set
- Additional questions, including for each question [does not apply to all sample exams]:
    - Any scenario needed by the question stem
    - Point value
    - Response (answer) option set

- *Answers, including justification are contained in a separate document*

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[1] In this sample exam the questions are sorted by the LO they target; this cannot be expected of a live exam.

Multiple Choice Questions

Question #1 (1 Point)
A business manager has discussed five objectives with you relating to his business.

    i.   Complying with the latest version of IEEE1044 as an applicable standard when documenting defects
    ii.   Improving the efficiency of software programs
    iii.   Ensuring that third party suppliers achieve TMMi Level 2
    iv.   Increasing sales by 10% for the next 5 years
    v.   Reducing the costs incurred in fixing production failures

Which objectives from the list above are reasonable propositions for improving the test process?

a) i, ii and iii
b) ii, iv and v
c) i, iii and v
d) ii, iii and iv

Select ONE option.

Question #2 (1 Point)
The term test process improvement suggests that only the process itself needs to be improved. To have efficient and effective test improvements other aspects must be considered as well.

Which of the following aspects, besides process, can be addressed during test improvement?

a) Requirements management, configuration management, project management
b) Dynamic testing, static testing
c) Infrastructure, organization, people issues
d) Product risks, project risks associated with testing

Select ONE option.

Question #3 (1 Point)
Comparing the Deming Cycle to the IDEAL improvement model, which of the following statements is true?

a) The Deming Cycle can be applied broadly, while the IDEAL improvement model focuses on test process improvement specifically
b) The IDEAL improvement model emphasizes the management perspective and commitment, which is addressed very limitedly in the Deming Cycle
c) The Deming Cycle does not address the evaluation of improvement steps, which is the explicit last phase in the IDEAL improvement model (Learning)
d) Statistical methods are an important aspect in both models to detect deviations in the execution and deployment of improvements

Select ONE option.

Question #4 (1 Point)

Which of the following approaches will give you the most benefits solving the specific problem "There are too many defects being found during system testing"?

    a) Model-based improvement approach
    b) Analytical-based improvement approach
    c) Hybrid improvement approach
    d) An approach using STEP as a test improvement model

Select ONE option.

Question #5 (1 Point)

Consider:

    1. Test tools are implemented with the intention of increasing test efficiency
    2. Test tools can be used by improvement groups because they can support measuring improvement initiatives
    3. Test tools are used by test teams to ensure conformity to test processes
    4. The test tool implementation process should be controlled by improvement groups to reduce problems in piloting
    5. Improvement activities are always dependent on supporting test tools

Which of the above statements is correct regarding improvement of the test process by using tools?

    a) 1, 3, and 4 are true,   2 and 5 are false
    b) 2, 4, and 5 are true,   1 and 3 are false
    c) 1, 2, 3, and 4 are true, 5 is false
    d) 1, 2, and 3 are true,   4 and 5 are false

Select ONE option.

Question #6 (1 Point)

Which of the following is a main reason why using iterative development models can be highly effective for test improvement?

    a) At the end of each iteration a retrospective meeting is held in which test improvements can be identified for the next iteration
    b) Tools are used that make the test process more efficient
    c) Iterative development models typically use standards that provide a framework for testing
    d) Component testing is core in iterative development models making testing much more efficient and effective

Select ONE option.

Question #7 (1 Point)

Which of the following is a typical advantage of using model-based approaches?

  a) They provide a mechanism to identify root causes
  b) The model can be followed without any further discussion; the improvement process to be followed is clearly specified
  c) You will benefit from the proposed set of best practices in testing, as proposed by the model's developers
  d) They always include setting specific improvement goals and metrics

Select ONE option.

Question #8 (1 Point)

Which of the following statements is correct regarding the TPI Next test process improvement model?

  a) TPI Next groups different processes on different stages together so that a detailed path to follow is provided for the test improvement team. The maturity of any process can therefore only be achieved on a specific level
  b) In a TPI Next assessment each key area is rated in three categories: Planning, Acquisition and Measurement. This is done using a maturity scale to define gaps according to the model's definition of key areas
  c) TPI Next uses generic and specific goals to identify the maturity of test processes and to improve them
  d) Maturity levels can be determined for each key area in TPI Next. An overall maturity to the test processes of the assessed organizational unit can also be determined

Select ONE option.

Question #9 (1 Point)

A small bank is about to start a test improvement program. For the current year, the aim is to become more effective in testing and to achieve TMMi level 2.

Which of the following process areas will be within the scope of the test process improvement program?

  a) The testing organization
  b) Non-functional testing
  c) Test design and test execution
  d) Test measurement

Select ONE option.

Question #10 (2 Points)

You are a test manager of a multi-year software development project, creating a financial records information system for a large car dealer. The V-model is being used and you have a 5-person test team at your disposal. After the first month of trying to get test design running without success, you decided to conduct an informal test process assessment on your own. You suspect that there is some room for improvement in the process of how your team does test design – it is not only a matter of using more effort on the large task.

You have chosen TPI Next as the improvement model to use. How will you use it for the problem described above?

   a) You only assess the test techniques key area, as you have problems in that area
   b) You follow the checkpoints from the test techniques key area built within the model to implement test techniques
   c) You conduct an assessment on all key areas and maturity levels within the model
   d) You prioritize and assess the test technique key area, but also assess all key areas for supporting improvements

Select ONE option.

Question #11 (2 Points)

You are hired as an external consultant by the IT department of a large bank to guide and perform a low-cost informal assessment on the test process on a project for electronic banking.

There are too many disturbances in production, which decreases the trust of the customers in the product. A team, with five testers and a test leader, are testing the application. You have been appointed to use TPI Next to assess the test maturity of the testing of the e-banking project.

Which approach will you take for this informal test process assessment regarding the team working on the electronic banking program?

   a) You will interview not only test team members, but also other project members and stakeholders and assess all testware of the last two releases. You will assess and score all key areas of TPI Next
   b) Based on business drivers the most important key areas will be assessed and scored. Testware is studied thoroughly, and stakeholders outside the test team will also be interviewed
   c) Using interviews with several team members and other IT roles outside testing, you will assess at least the key areas related to test strategy, organization, defect management and test design based on a business-driven perspective (including the associated clusters).
   d) Based on the interviews and a documentation study all relevant checkpoints will be scored by you. The scores will be reviewed by the interviewees
   e) Members of the test team will fill in the scores of the key areas and checkpoints based on their roles during the project. Only the key areas directly related to the business problem stated will be assessed. Based on the scores, improvements will be identified and proposed

Select ONE option.

Question #12 (2 Points)

You have just conducted an informal test process improvement interview with a test manager which focussed on the TMMi process area "Test Policy and Strategy". The following notes were taken:

- The test team performs a workshop with all stakeholders to discuss product risks. The test manager uses this information for identifying areas which need more testing
- The test manager talks regularly to the business owners to define and update test objectives. The test manager then defines the test policy and explains it to the test team. Achievement of the test objectives is not measured
- A test strategy is established which describes the different test levels to be performed
- The test manager first explains the test strategy to the test team and then presents it to the stakeholders

Use the following TMMi checkpoints, derived from the specific practices, to assess the achievement of specific goals in process area 2.1 "Test Policy and Strategy".

Specific Goal 1 Establish a test policy

Specific Practice (SP)	Description	Your notes
SP1.1	Define and maintain test objectives based on business needs and business objectives	
SP1.2	A test policy, aligned with the business (quality) policy is defined based on the test objectives and agreed upon by the stakeholders	
SP1.3	The test policy and test objectives are presented and explained to stakeholders inside and outside of testing	

Specific Goal 2 Establish a test strategy

Specific Practice (SP)	Description	Your notes
SP2.1	A generic product risk assessment is performed to identify the critical areas for testing	
SP2.2	A test strategy is defined that identifies and defines the test levels	
SP2.3	The test strategy is presented and discussed with the stakeholders inside and outside of testing	

Specific Goal 3 Establish test performance indicators

Specific Practice (SP)	Description	Your notes
SP3.1	The test performance indicators are defined based on the test policy and test objectives including a procedure	

	for data collection, storage, and analysis	
SP3.2	Deploy test performance indicators and provide measurement results addressing the identified test performance indicators to stakeholders	

Assess each Specific Goal (SG) and determine whether it has been fully, partially, largely, or not achieved.

Which of the following assessment results is correct?

   a) SG1: Partly Achieved,   SG2: Fully Achieved,   SG3: Not Achieved
   b) SG1: Fully Achieved,   SG2: Partly Achieved,   SG3: Partly Achieved
   c) SG1: Partly Achieved,   SG2: Largely Achieved,   SG3: Not Achieved
   d) SG1: Largely Achieved,   SG2: Fully Achieved,   SG3: Partly Achieved

Select ONE option.

Question #13 (2 Points)

You have been approached by a small local bank to do a TMMi assessment. Since they believe they are far from achieving a TMMi level, they have asked you to do a TMMi level 2 quick scan only to identify opportunities for improvement. In line with the assignment, you have spent only three days in the bank using interviews to gather evidence. You have now done the analysis and some scoring for the various process areas.

The informal TMMi assessment for the bank resulted in the following scores for the various TMMi level 2 process areas:

- Test Policy and Strategy   Partly Achieved
- Test Planning   Fully Achieved
- Test Monitoring and Control   Fully Achieved
- Test Design and Execution   Largely Achieved
- Test Environment   Not Applicable

What is the overall rating you would provide to the bank for TMMi level 2 "Managed"?

a) Not Achieved
b) Partly Achieved
c) Largely Achieved
d) Not Applicable

Select ONE option.

Question #14 (1 Point)

According to the STEP improvement model:

- detailed planning
- list test objectives
- test analysis
- test design and specification

Which of the roles listed below typically performs the following activities?

a) Senior test designer
b) Test analyst
c) Test manager
d) Tester

Select ONE option.

Question #15 (1 Point)

The test manager has decided to use root cause analysis as part of the inspection process in your current project. The root cause analysis has been split into two parts: defect analysis and generic analysis.

What is typically done in each of these two parts?

a) Defect analysis: analyze defects with high severity; Generic analysis: analyze the generic test procedures for improvement
b) Defect analysis: look for specific defects with certain patterns; Generic analysis: identify trends in the number of test cases causing defects
c) Defect analysis: analyze groups of defects, e.g., with similar failures; Generic analysis: identify root causes for those defects
d) Defect analysis: analyze which tests have exposed the defects; Generic analysis: identify generic trends in defect finding

Select ONE option.

Question #16 (2 Points)

An in-flight emergency has occurred during the trials for a new aircraft. A standard cause-effect diagram for investigating such incidents has been prepared. The aspects relating to software testing are shown in the diagram.

An initial investigation provided the following information:

- Test data have been updated for the specific flight characteristics of the aircraft
- A production copy of the hardware and software is used for the tests
- The company has just passed an audit which verified standards conformity and full compliance with the targets set for requirements coverage of test cases
- Test results are recorded by a tool which has been certified as providing accurate data
- The pass / fail criteria used in the test cases are based on previous flight trials for similar aircraft
- All tests passed

Based on this information, you have been asked to select the next activity to be investigated, based on your initial assessment of the most likely cause for the incident.

Which of the following would you select?

a) Investigate the accuracy of the test data
b) Investigate whether tests are being passed which should have failed
c) Investigate the procedures used for the audits
d) Investigate configuration management procedures used for the test environment

Select ONE option.

Question #17 (3 Points)

An online bookstore is having increasing production problems since the last release with a new ordering process being one of its most important features. The system is becoming unstable, and data seems to be lost during evening hours, which results in dissatisfied customers complaining about not receiving their ordered books. In addition, several user-unfriendly messages keep appearing on the screens of the online bookstore. One customer complained that he was not able to find the book he required on the online bookstore, even though it was available. During testing there were several problems with the test environment not being stable.

IT management responsible for the online bookstore organized a retrospective meeting with the test team to identify production defects that needed to be looked at in more in detail. The team uses cause-effect diagrams to understand the defects and have some ideas about the most likely causes for the various defects. The defects are also categorized by impact and frequency.

During system testing, the team had focused on the functionality of the order process and on the user interface based on their risk assessment with the stakeholders. The team achieved good coverage on functional suitability and usability and defects found were solved in a reasonable time frame. The team had a test environment, although not completely stable, with test tools available for system testing and followed a structured test process called TMap Next.

Which of the defects listed below should be selected for a detailed root cause analysis?

   a) User unfriendly messages
   b) Test environment problems
   c) Unstable production system and loss of data
   d) Compliance regarding the book not being found

Select ONE option.

Question #18 (1 Point)

Which of the following set of metrics is suitable for monitoring improvements on test efficiency?

   a) Early defect detection, automation level
   b) Test productivity, post-release defect rate
   c) Early defect detection, defect detection percentage
   d) Defect detection percentage, early defect detection

Select ONE option.

Question #19 (1 Point)

In the context of a goal question metric (GQM) based measurement program, a kick-off session is organized at the beginning of the data collection phase.

Which of the following topics is most likely to be part of the agenda of this kick-off session?

   a) Test data collection procedures and forms
   b) Repeating and explaining goals and questions
   c) Interpreting measurements
   d) Using data collection forms

Select ONE option.

Question #20 (2 Points)

An insurance company has a dedicated test team consisting of a small number of core testers that lead testing projects as part of the internally run software projects. They write and execute tests together with non-professional testers from the different departments that will later use the new or changed products. The test team has defined the following measurement goal to improve their test processes:

Analyze	all test cases in the test case database
For	understanding
With respect to	reusability
From the viewpoint of	the core test team
In the context of	starting new testing projects

The following questions and metrics were proposed by the test team members.

Q.1   "Is it better to rework and then reuse test cases or to write them from scratch?"
Q.2   "How much time and money are spent on reworking test cases?"
Q.3   "What can we do to improve reusability?"
Q.4   "How many test cases must be archived and can never be reused again?"
Q.5   "Who is better at writing effective test cases – the core team testers or the non-professional testers?"
Q.6   "Which kinds of projects produce which grade of reusability?"
Q.7   "What training do non-professional testers need to write better test cases?"

M.01   Number of reused test cases (#)
M.02   Time spent writing new test cases (hours)
M.03   Time spent reworking test cases (hours)
M.04   The group the test case author belongs to ([core, dept])
M.05   Money spent reworking test cases ([$])
M.06   Number of outliers in the reusability chart
M.07   Percentage of test cases that has been reworked ([0%, 20%, 50%, 80%, 100%])
M.08   Part of a test case that has been reworked ([administrative data, input values, preconditions, test steps, expected results])
M.09   Number of changed revisions of test cases (#)
M.10   Type of project ([Class A, Class B, Class C])
M.11   Number of rejected test cases in reviews (#)
M.12   Root causes for non-reusable test cases

Which of these should best be used in the GQM plan to fulfill the given goal?

a) Q.1 to Q.7 and M.01 to M.12 are all equally necessary
b) Q.1, Q.2, Q4 and Q.6 with M.01 to M.05, M.07, M.08, and M.10 adhere to the given goal
c) Q.3 is sufficient, but all M.01 to M.12 answer that question
d) Q.1, Q.5 and Q.7 are the only questions that need to be answered, M.02 to M.04, M.09, M.11, and M.12 answer these questions

Select ONE option.

Question #21 (2 Points)

Embedded software is being used to set up a measurement program to get visibility into the effectiveness of testing. For this purpose, the project team is using the goal question metric (GQM) approach. After analyzing the goal and defining the questions, several possible metrics have been identified. One of the metrics they have selected to use is the level of statement coverage achieved during component testing.

As a next step in the process of defining the measurement plan, the metrics are defined in detail using the following attributes:

- Formal definition of statement coverage (measurement formula)
- Short textual explanation
- A hypothesis (possible outcome)
- How the data will be collected via the coverage tool
- The point in time when the data is collected, e.g., after full completion of component testing

Which of the following items is most important to add to the standard list of attributes used to define the metrics?

a) The analysis procedure
b) A list of stakeholders, e.g., target audience
c) The environment in which the data collection will take place
d) A list of influencing factors

Select ONE option.

Question #22 (1 Point)

Which of the following is the preferred test process improvement approach for a situation defined by the statement "Agreement is needed regarding the reasons for change"?

a) Process reference model approach
b) Mixed or hybrid approach
c) Content-based model approach
d) Analytical-based approach

Select ONE option.

Question #23 (1 Point)

Considering the following high-level activities:

1. Set context and establish sponsorship
2. Define performance indicators
3. Identify stimulus for improvement
4. Establish an improvement infrastructure (i.e., organization)
5. Set detailed objectives and establish test improvement team commitment
6. Plan an assessment
7. Define the impact of improvement measures

Which of the high-level activities are parts of the "Initiating" phase of the IDEAL improvement model?

a) Only 1, 3 and 4 are parts of the "Initiating" phase of the IDEAL improvement model
b) Only 1, 2 and 5 are parts of the "Initiating" phase of the IDEAL improvement model
c) Only 1, 2, 3, 4 and 5 are parts of the "Initiating" phase of the IDEAL improvement model
d) Only 1 and 3 are parts of the "Initiating" phase of the IDEAL improvement model

Select ONE option.

Question #24 (3 Points)

You are a quality assurance manager, and you are currently preparing for a test improvement assessment within your company. The development manager of the software development business unit has directed you to look at one key product line of the unit and try to find testing productivity increase opportunities. He mentions that his balanced scorecard includes productivity increase goals for the upcoming year. These goals have been set by the development manager together with his business unit manager. You question him about details of the productivity increase goals and learn that the productivity increase together with emphasis on new innovative features of the product line is expected to increase profit of that product line by 20%.

How will you respond? What action will you carry out based on this information?

a) You consider changing your test improvement goals to also address innovative ways of testing, because innovation is also on your boss's balanced scorecard, leading into the same goal. Your new test objective would be to contribute to a 10% profit increase through innovation
b) You analyze what portion a 20% profit increase could be targeted to a productivity increase and how much of that could testing productivity increase contribute to. The result would be a quantifiable goal for testing
c) You analyze the balanced scorecard information to find ways to choose the right people to help you with the assessment. With the right people you can influence profit targets more directly than through productivity only
d) You promise the development manager to make him look good by identifying and implementing improvements that will increase profit at least 30%. You ask him to team up with you to enhance the chance of an even higher increase

Select ONE option.

Question #25 (1 Point)

What would you typically do during a solution analysis?

a) Estimate solution capability to solve common goals of organizational improvement, and then decide whether to use the solution or not
b) Prioritize problems and root causes, identify potential solutions to problems, and then choose between those solutions
c) Analyze potential solutions to identify bottlenecks in their possible implementation, and then brainstorm ideas on how to remove bottlenecks
d) Analyze the organizational situation to identify problems to be addressed in the improvement plan, and then prioritize the problems

Select ONE option.

Essay Questions

Answer two (2) of the following three (3) essay questions.

Essay Question #1 (50 Points)

Your business unit has decided to improve its test process due to some shortcomings in the quality of the recent release of their product, the car navigation system. There is a demand to identify improvements especially in coverage because the development manager has analyzed that the functional area where the customer reported defects had less tests than other functional areas. Some of test team members feel that coverage is generally good and the real reasons for quality shortcomings are poor architecture and design. They are not very enthusiastic about the upcoming assessment and resulting improvements. Your company has already invested in CMMI level 2 improvements in recent years although not yet a full CMMI level 2 for the company, and thus your boss now thinks you can find test improvements most easily with TMMi. You accept the assignment to conduct a TMMi assessment for your business unit.

Questions:

1. Which TMMi process areas will you focus on and explain why? (maximum 25 points). Explain using the structure of TMMi and details of the relevant process areas.
2. Who will you typically interview during an assessment such as this? (maximum 10 points) State the reasons why you would interview persons in these roles and mention at least five (5) different roles to be interviewed
3. List the topic(s) that you will discuss per role (maximum 7 points)
4. Explain how you will motivate the interviewees in this situation. (maximum 8 points)

Essay Question #2 (50 Points)

In this essay question, you will be asked to do the following:

1. Evaluate assessment results shown on a TPI Next matrix and provide recommendations
2. Evaluate results from defect root cause analysis and provide recommendations
3. Propose recommendations and conclusions based on the above information

GCF provides software applications that manage the financial strategies of global companies in the banking sector. GCF has received some negative feedback from its customers relating to its Galaxy series of products. As an initial reaction to this, the following activities have been conducted by an external assessment organization:

1. A test process assessment was performed to determine whether the basic aspects of testing were being performed. The assessment covered the initial two clusters A and B as defined in TPI Next.
2. Defects reported by the help desk over the last six months were analyzed to gain insights into root causes.

The results of these two initial activities are shown below. Figure 1 shows the assessment of clusters A and B on a TPI Next matrix. Tables 1 and 2 list the checkpoints for these two clusters.

In the context of the above, GCF has defined several business objectives regarding testing:

1. Improve the effectiveness of testing
2. improve transparency of testing to its stakeholders
3. Improve test management practices.

Task 1: "Recommendations based on TPI Next assessment"

Maximum 20 points

Analyze the results shown on the TPI Next matrix (Figure 1). Use Tables 1 and 2 as a reference if necessary.

Propose 5 recommendations based on the results of the TPI Next assessment. Enter your answers in Table 3. Each recommendation must clearly state:

1. What should be done
2. What the positive impact will be on the business objectives of the CGF Company

Key Area		Checkpoints (clusters A and B)			
1	Stakeholder commitment	A	B	B	
2	Degree of involvement	A	B		
3	Test strategy	A	A	B	
4	Test organization	A			
5	Communication	B			
6	Reporting	B			
7	Test process management	A	A	B	B
8	Estimating and planning	B	B		

9	Metrics				
10	Defect management	**A**	**A**	**B**	
11	Testware management	**B**	**B**		
12	Methodological practice				
13	Tester professionalism				
14	Test case design	**A**	**A**		
15	Test tools				
16	Test environment				

Figure 1: TPI Next Matrix for Clusters A and B in Maturity Level "Controlled"

In Figure 1, the checkpoints successfully achieved are shaded dark grey. The checkpoints not achieved are shaded light grey. All other checkpoints (including those relating to higher maturity levels) are out of scope.

Key area	CLUSTER A: Checkpoint Number / Checkpoint	Your Notes
Stakeholder commitment	1. The principal stakeholder is defined (not necessarily documented) and known to the testers	
Degree of involvement	1. The test assignment, scope and approach are negotiated early with the principal stakeholder as one of the first test activities	
Test strategy	1.The principal stakeholder agrees with the documented test strategy	
	2. The test strategy is based on a product risk analysis	
Test organization	1. People involved know where to find the persons (or department) responsible for test services	
Test reporting	1. The reporting contains aspects of time and/or costs, results, and risks	
Test process management	1. At the start of the test project a test plan is created. The test plan includes at least the test objectives, the test scope, the test planning, the roles, and responsibilities	
	2. The test plan is agreed to by the principal stakeholder	
Defect management	1. The defect lifecycle is defined (including a retest) and applied	
	2. The following items are recorded for each defect: unique ID, related test case ID (if applicable), person reporting the defect, date, severity, description (the actions to reproduce the defect, expected and observed result) and defect status	
Test design	1. The test cases are recorded on a logical level	

Key area	CLUSTER A: Checkpoint Number / Checkpoint	Your Notes
	2. The test cases consist of a description of: a) initial situation, b) change process = test actions to be performed, c) predicted result	

Table 1: Checkpoints for TPI Next cluster A

Key area	CLUSTER B: Checkpoint Number / Checkpoint	Your Notes
Stakeholder commitment	2. Budget for test resources is granted by and negotiable with the principal stakeholder	
	3. Stakeholders deliver the committed resources	
Degree of involvement	2. Test activities are started early, timely before test execution, with the goal of keeping the test activities of the project's critical path	
Test strategy	3. There is a differentiation in test levels, test types, coverage, and test depth, depending on the analyzed risks	
Communication	1. Every team member is aware of decisions being made and of internal progress	
Test process management	3. Each test activity is monitored and when necessary, adjustments are initiated	
	4. The test plan is agreed with the relevant stakeholders	
Estimating and planning	1. For test effort estimation, simple techniques are used such as ratios	
	2. For each test activity there is an indication of the period in which it runs, the resources required and the products to be delivered. Activities to be identified are test planning and management, defining test cases and executing test cases	
Defect management	3. For further handling of defects the responsibilities are defined	
Testware management	1. The test basis, the test object and all testware are identified by name and version	
	2. Each test case is related to a test basis in a transparent way	

Table 2: Checkpoints for TPI Next cluster B

Answer template to task 1: "Recommendations based on TPI Next assessment"

Propose 5 recommendations based on the results of the TPI Next assessment.

Each recommendation must clearly state what should be done and what the positive impact will be on the business objectives of CGF.

Problem area	Recommendation 1	Positive impact on business objective
	Recommendation 2	Positive impact on business objective
	Recommendation 3	Positive impact on business objective
	Recommendation 4	Positive impact on business objective
	Recommendation 5	Positive impact on business objective

Table 3: Recommendations based on the results of the TPI Next assessment

Task 2: "Defect analysis"

Maximum 10 points

Table 4 shows defect data recorded by the help desk over the last six months relating to the three most common root causes affecting the Galaxy range of products.

Products in the Galaxy range:

- Galaxy-TX: mainframe application for processing financial transactions
- Galaxy-Go: mainframe application for issuing customer account statements
- Galaxy-Self: web-based application allowing customers access to their accounts
- Galaxy-App: mobile application allowing customers mobile access to their accounts

Analyze the data shown in Table 4 and propose two (2) improvement recommendations.

Each recommendation must clearly state:

1. What should be done
2. What the positive impact will be on the business objectives of CGF

Enter your answers in Table 5.

Galaxy product	Galaxy-TX	Galaxy-Go	Galaxy-Self	Galaxy-App
Defects				
Number of defects	30	20	30	50
% high severity	67%	20%	0%	10%
% medium severity	17%	60%	50%	10%
% low severity	16%	20%	50%	80%
Top three root causes				
Testing not completed as planned	80%	60%	0%	10%
Poor release management	10%	30%	10%	80%
Stakeholder expectations not fulfilled	10%	20%	90%	10%

Table 4: Results of Root-Cause Analysis for defects affecting the Galaxy product range

Answer template to task 2: "Defect analysis"

Recommendation 1	Positive impact on business objective(s)
Recommendation 2	**Positive impact on business objective(s)**
Recommendation 3	**Positive impact on business objective(s)**

Table 5: Recommendations based on the results of the root cause analysis

Task 3 "Summary of conclusions"

Maximum 20 Points

You are requested to present your conclusions to high-level management, who do not have a detailed technical understanding of testing. Each statement must be understandable, address company objectives, relate to the findings (TPI Next and root cause analysis) and must not use technical terms. It must be clear what actions management needs to take.

Make the following five (5) summary statements:

- The current test process maturity
- For each of the three business objectives which indicates how the recommended test process improvements will provide benefit to the company. The statements should consider your answers to tasks 1 and 2 above without repeating them literally
- Where to set priorities for improving the test process (identify the top three (3) priorities)

Enter your answers in Table 6.

Answer template to task 3: "Summary of conclusions"

Current test process maturity:
Area for improvement: Business objective 1
Area for improvement: Business objective 2
Area for improvement: Business objective 1
Priorities for improving test process maturity

Table 6: Summary of conclusions

Essay Question #3 (50 Points)

You work as a test team lead for a major Bank in their IT department. The bank has decided to update their ATM machines. The project has very tight timescales and is using an iterative development model. It is important that the project succeeds for the bank to maintain its competitive edge with other major banks. It is also vital that all existing functional suitability operates as before and that there is no degradation in usability and performance. The bank does not use a standard test process, but rather several random best practices that the test professionals learned attended training courses. Currently, all development and testing activities take place in house, with a limited number of contractors.

Two previous projects, one on the savings application, and one on the credit card application, have not succeeded in terms of adequate product quality. Although it is not clear in which area the problem lies, management has decided that some test process improvement needs to take place in this project to ensure all defects are found before the application goes live. There is not a huge budget allocated for the test process improvement activities, so it needs to be extremely focused.

The defect data (well-documented) from previous projects is stored in a defect management system. A large percentage of the defects that are being found after release seem to be somehow related. The organization does not have a history on test process improvement and there is no real long-term strategy in place. The major and perhaps only focus of the test improvements should be on making the ATM project successful.

Questions:

1. You have been asked by management to recommend a test improvement model for the project.
   a. Identify the two major test improvement models (2 points)
   b. Identify four (4) criteria that can be used to compare the models (4 points)
   c. Evaluate both models against the defined criteria in the context of this project (maximum 16 points)
   d. Make a substantiated management recommendation, including which one of test improvement models is best in this context. (3 points)
2. You have now visited a leading testing conference where you listened to a presentation discussing analytical-based improvement. This was totally new to you but seems remarkably interesting and you have been inspired.
   a. Identify and explain four (4) reasons why an analytical-based approach could be beneficial to the bank (and ATM project). (maximum 16 points)
   b. In case an analytical-based approach is going to be used, which analytical-based approach would you use and why? Also briefly explain the analytical-based approach that you have chosen. (5 points)
   c. As part of the project, to justify the small investment and to measure the effect on activities, a test process improvement indicator (metrics) needs to be identified. Which metrics would you choose and why? Also briefly explain each metric. (4 points)